

WHAT IS CLAIMED IS:

1                   1.       A method for detecting whether a tissue is undergoing senescence,  
2       said method comprising the step of detecting the overexpression or the underexpression  
3       of a senescence-associated molecule of interest according to Table 1 in a subject, wherein  
4       overexpression or underexpression of said molecule is indicative of senescence.

1                   2.       The method of claim 1, wherein overexpression of said molecule is  
2       indicative of senescence, and wherein said molecule is overexpressed in said tissue.

1                   3.       The method of claim 1, wherein underexpression of said molecule  
2       is indicative of senescence, and wherein said molecule is underexpressed in said tissue.

1                   4.       The method of claim 1, said method comprising detecting an  
2       mRNA encoding said senescence-associated molecule.

1                   5.       The method of claim 1, said method comprising detecting said  
2       senescence-associated molecule in an immunoassay.

1                   6.       The method of claim 1, wherein said tissue of interest is the skin.

1                   7.       A method for identifying a modulator of senescence, said method  
2       comprising the steps of:

3                   (a) culturing a cell in the presence of said modulator to form a first cell  
4       culture;

5                   (b) contacting RNA or cDNA from said first cell culture with a probe  
6       which comprises a polynucleotide sequence that encodes a senescence-associated protein  
7       selected from the group consisting of the sequences set forth in Table 1;

8                   (c) determining whether the amount of said probe which hybridizes to the  
9       RNA or cDNA from said first cell culture is increased or decreased relative to the amount  
10      of the probe which hybridizes to RNA or cDNA from a second cell culture grown in the  
11      absence of said modulator; and

12                  (c) detecting the presence or absence of an increased proliferative potential  
13      in said first cell culture relative to said second cell culture.

1                   8.       The method of claim 7, wherein said first and second cell cultures  
2       are obtained from a skin cell.

1            10.     The method of claim 9, wherein said first and second cell cultures  
2     are obtained from a skin cell.

11. A method for inhibiting cell senescence, said method comprising the step of introducing into a cell a senescence-associated molecule according to Table 1, wherein underexpression of said senescence-associated molecule is indicative of senescence.

1                    12.     The method of claim 11, wherein said senescence-associated  
2     molecule is a nucleic acid encoding a senescence-associated protein.

1                    13.     The method of claim 11, wherein said senescence-associated  
2     molecule is a protein.

1                    14.     A method for inhibiting cell senescence, said method comprising  
2     the step of inhibiting in a cell a senescence-associated molecule according to Table 1,  
3     wherein overexpression of said senescence-associated molecule is indicative of  
4     senescence.

1                    15.     The method of claim 14, wherein said senescence-associated  
2     molecule is inhibited using an antisense polynucleotide.

1                    16.    The method of claim 14, wherein said senescence-associated  
2    molecule is inhibited using an antibody that specifically binds to the senescence-  
3    associated protein.

1                    17.    A method for inhibiting cell senescence in a patient in need thereof,  
2    said method comprising the step of administering to the patient a compound that  
3    modulates the senescence of a cell.

1                    18.    A kit for detecting whether a skin cell is undergoing senescence,  
2    said kit comprising:  
3                    (a) a probe which comprises a polynucleotide sequence according to Table  
4    1, associated with skin aging; and  
5                    (b) a label for detecting the presence of said probe.

1                    19.    A cosmetic composition for inhibiting skin cell aging in a patient,  
2    said cosmetic composition comprising a compound that modulates the senescence of a  
3    cell

1                    20.    The cosmetic composition of claim 19, wherein said composition is  
2    in a form selected from the group consisting of gels, ointments, creams, emollients,  
3    lotions, powders, solutions, suspensions, sprays, pastes, oils, and foams.